

CLAIMS

What is claimed is:

- 1 1. In a storage area network (SAN) computer system having a volume group made up of
2 one or more physical disks, a method for providing SAN boot devices, said method comprising:
3 storing a boot image from a boot device on at least one disk within said volume group;
4 subsequently booting the SAN system from the boot image stored on the at least one
5 disk, wherein the SAN system's boot operation is completed from within said logical volume.
- 1 2. The method of Claim 1, said storing step further comprising:
2 copying boot install images from said first boot device to multiple disks within the
3 volume group, whereby each disk of said multiple disks within said volume group may
4 independently serve as a boot device for the SAN system and a boot process may be initiated
5 from any one of the multiple disks in the volume group.
- 1 3. The method of Claim 1, wherein said storing step comprises:
2 selecting the at least one physical disk on which to copy the boot install images;
3 selecting particular boot install images to copy to said at least one physical disk, wherein
4 less than all of said boot install images may be selected for copying.
- 1 4. The method of Claim 1, wherein said storing step further comprises:
2 building the boot image on a computer system associated with said SAN; and
3 uploading the boot image to said logical volume.
- 1 5. The method of Claim 1, wherein said subsequently booting step comprises switching a
2 boot sequence from the first boot device that is external to said logical volume to the at least one
3 disk.

1 6. The method of Claim 5, wherein said switching step further comprises:
2 booting up the SAN system in maintenance mode;
3 generating a prompt for a system administrator to select a boot device from among a
4 displayed list of available boot devices; and
5 automatically encoding the identification and routing information of the selected boot
6 device in a BIOS (basic input/output system) path for accessing a boot device to complete a boot
7 of the SAN system, wherein boot device selected is the at least one disk within the volume
8 group.

1 7. The method of Claim 5, said switching step further comprising:
2 monitoring for an occurrence of a predefined condition on said SAN system; and
3 initiating said switching when one of a plurality of said predefined condition occurs;
4 wherein said predefined conditions include: (1) receiving an error signal from the first
5 boot device when a boot up is desired; (2) being unable to access said first boot device when a
6 boot up is desired; (3) encountering a failure on said SAN computer system that results in a shut
7 down of said system; and (4) system administrative directive to re-boot system from a selected
8 one of said at least one disk.

1 8. The method of Claim 1, further comprising:
2 selecting a first one of said at least one physical disk as a first boot disk from which said
3 boot process is to be completed; and
4 when a subsequent boot from the selected first boot disk fails and there are additional
5 disks within the logical volume, automatically selecting a second boot disk to complete the boot
6 process, wherein said automatic selecting selects a subsequent boot device based on a pre-
7 established selection order for selecting SAN boot devices when one of the set of predefined
8 conditions occur.

1 9. The method of Claim 1, wherein said boot operation includes:
2 reading of the boot image at SAN speed, wherein further no boot images are pulled from
3 across the network; and

4 installing images from the boot logical volume at said SAN speed.

1 10. The method of Claim 1, wherein responsive to an occurrence of a corrupted boot logical
2 volume (LV) on a primary boot disk, said method comprises:

3 pointing the system at the install volume group; and

4 initiating an boot installation process to import the install volume group and install the
5 base operating system (BOS) image, which in turn installs the proper devices and optional OPP
6 support desired.

1 11. The method of claim 1, wherein, when an administrator desires to install new optional
2 programming parameters (OPPs) , said method further comprises:

3 importing the install volume group;

4 mounting the file system hosted on said volume;

5 installing the OPP images;

6 updating a table of contents file for the file system;

7 dismounting the file system; and

8 exporting the volume group.

1 12. A storage area network (SAN) data processing system, comprising:

2 SAN fabric connection;

3 an input/output (I/O) device;

4 a logical volume comprised of one or more physical storage devices that are accessible on
5 the SAN via the SAN fabric connection; and

6 means for providing a copy of a boot device on at least one of the storage devices in said
7 logical volume, wherein said copy enables a boot of said SAN system from within the logical
8 volume at SAN speed.

9 means for booting said SAN system by installing images from the boot logical volume at
10 said SAN speed.

1 13. The SAN system of Claim 12, wherein each storage device has a unique ID, said SAN
2 system further comprising:

3 a BIOS;
4 a mechanism for powering said SAN system on and off, wherein a boot is initiated by
5 said BIOS from a boot image stored on said at least one storage device whenever the SAN
6 system is turned on from an off state.

1 14. The SAN system of Claim 12, further comprising:
2 program code for copying boot install images from said first boot device to multiple
3 storage devices within the volume group, whereby each storage device of said multiple storage
4 devices within said volume group may independently serve as a boot device for the SAN system
5 and a boot process may be initiated from any one of the multiple storage devices in the volume
6 group; and
7 program code for updating a table that provides a list of all boot devices accessible to said
8 SAN system, including each storage device to which a the boot install image is copied.

1 15. The SAN system of Claim 12, further comprising program code for:
2 selecting the at least one physical storage device on which to copy the boot install
3 images;
4 selecting particular boot install images to copy to said at least one physical storage
5 device, wherein less than all of said boot install images may be selected for copying.

1 16. The SAN system of Claim 12, further comprising program code for:
2 booting up the SAN system in maintenance mode;
3 generating a prompt for a system administrator to select a boot device from among a
4 displayed list of available boot devices;
5 switching a boot sequence from the first boot device that is external to said logical
6 volume to the at least one disk; and
7 automatically encoding the identification and routing information of the selected boot
8 device in a BIOS (basic input/output system) path for accessing a boot device to complete a boot
9 of the SAN system, wherein boot device selected is the at least one disk within the volume
10 group.

1 17. The SAN system of Claim 16, further comprising program code for:
2 monitoring for an occurrence of a predefined condition on said SAN system; and
3 initiating said switching when one of a plurality of said predefined condition occurs;
4 wherein said predefined conditions include: (1) receiving an error signal from the first
5 boot device when a boot up is desired; (2) being unable to access said first boot device when a
6 boot up is desired; (3) encountering a failure on said SAN computer system that results in a shut
7 down of said system; and (4) system administrative directive to re-boot system from a selected
8 one of said at least one disk.

1 18. The SAN system of Claim 12, further comprising program code for:
2 enabling selection of a first one of said at least one physical disk as a first boot disk from
3 which said boot process is to be completed; and
4 when a subsequent boot from the selected first boot disk fails and there are additional
5 disks within the logical volume, automatically selecting a second boot disk to complete the boot
6 process, wherein said automatic selecting selects a subsequent boot device based on a pre-
7 established selection order for selecting SAN boot devices when one of the set of predefined
8 conditions occur.

1 19. The SAN system of Claim 12, wherein responsive to an occurrence of a corrupted boot
2 logical volume (LV) on a primary boot disk, said system further comprises program code for:
3 pointing the system at the install volume group; and
4 initiating an boot installation process to import the install volume group and install the
5 base operating system (BOS) image, which in turn installs the proper devices and optional OPP
6 support desired.

1 20. The SAN system of claim 12, wherein when an administrator desires to install new
2 optional programming parameters (OPPs), said system further comprises program code for:
3 importing the install volume group;
4 mounting the file system hosted on said volume;
5 installing the OPP images;

6 updating a table of contents file for the file system;
7 dismounting the file system; and
8 exporting the volume group.

1 21. A computer program product, comprising:
2 a computer readable medium; and
3 program code on said medium that enables a system administrator to access a boot device
4 and copy boot install images from the boot device to a physical disk on a SAN which a logical
5 volume is provided, wherein said physical disk serves as a boot device for said logical volume
6 during subsequent boot.

1 22. The computer program product of Claim 21, further comprising:
2 program code for displaying a graphical user interface (GUI), wherein said GUI displays
3 a list of available boot install devices and enables a system administrator to manually select
4 which device among the list of available boot install devices to utilize as a boot install device,
5 and wherein further said GUI enables a system administrator to set up a physical volume to
6 receive a copy of said boot image.

1 23. The computer program product of Claim 21, further comprising program code for
2 selecting a default boot device from among available boot devices, wherein a boot device within
3 the logical volume is selected and a path to said default device is automatically encoded in the
4 BIOS path.